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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,926	01/07/2004	Michael R. Detty	19226/2241 (R-5775)	5689

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EXAMINER

MOORE, MARGARET G

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/753,926	Applicant(s) DETTY ET AL.	
	Examiner Margaret G. Moore	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 to 31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 to 3, 7 to 12, 16 to 13, 27 to 31 is/are rejected.
- 7) ☒ Claim(s) 4 to 6, 13 to 15, 24 to 26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: <u>2/2/05</u> | 6) <input type="checkbox"/> Other: ____ |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 20 to 22, 30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Simendinger or WO 01/14497.

Simendinger teaches an antifouling coating composition. Column 2, starting on line 31, discloses the preparation of a sol gel coating. Note that the diethoxysiloxane in the table on column 4 meets the requirements of claim 22, as this corresponds to a gel formed from tetraethylorthosilane (in which two of the ethoxy groups have already been condensed to form the siloxane backbone). As can be seen from column 1, this composition is applied to a surface which is subjected to marine environment; this also meets claim 30. Column 9, lines 29 and 30, meets claim 31.

WO 01/14497 (herein '497) teaches a gel capable of forming a hydrophobic surface. See for instance page 2 through page 3, which meets the requirement of claim 22. Page 5, line 7, teaches the method steps of claim 31. See page 9, line 3 and on, which teaches treating surfaces of maritime and inland waterway vessels as an anti-fouling coating. This meets the instant claims.

3. Claims 1 to 3, 8 to 12, 17 to 23 and 28 to 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Mager et al.

Mager et al. teach carboxysilane dendrimers that are incorporated into a sol-gel

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composition. See for instance the dendrimers on column 2, lines 50 to 60 and note line 15 of column 3 which teaches using a sol-gel process to form the organic-inorganic hybrid compositions. See column 8 which teaches a metal compound that forms the sol-gel matrix. Particularly note the preferred silane on line 25 which meets claim 3. This anticipates the instant claims.

Column 9, lines 53 to 56, teach coating method meeting claim 31. Column 10, line 12 to 14, meets the substrate of claim 30. With regard to the "subjected to a marine environment" it is the Examiner's position that this is a future intended use of the subject and as such does not lend any patentable weight to the method of claim 20.

4. Claims 1 to 3, 8, 10 to 12, 17 to 23 and 28, 30 and 31 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 02/094410, herein Malik.

Malik teaches coating composition in which a dendrimer is bonded to a sol-gel. See the description on the bottom of page 12, as well as Figures 5 through 8. See page 19, which shows a silane compound used to prepare the sol gel. Note that it is preferred that 3 or 4 of the R groups are sol-gel active, and among preferred sol-gel active R groups are methoxy and ethoxy. This gives the skilled artisan a limited selection of preferred silanes such that there is sufficient specificity to anticipate the silanes in claim 3. Note too line 8 of page 20 which specifically teaches tetramethoxy-silane. This composition is used to coat a capillary. Again note that the language "subjected to a marine environment" is a future intended use of the subject and as such does not lend any patentable weight to the method of claim 20.

5. Claims 1 to 3, 7, 10 to 12, 16, 19 to 23, 27, 30 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayashi et al.

Hayashi et al. teach a silica based film forming composition in which a silane undergoes hydrolysis and condensation in the presence of a compound compatible or dispersible therein. The silane components are taught starting on line 60 of column 1 and include tetramethoxy- and tetraethoxysilanes (formula (2) on column 2). While not specifically referred to as a sol-gel, this hydrolysis/condensation product is, in fact, a

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sol-gel composition meeting the sol-gel matrix in claim 1. Column 12, line 39, teaches the addition of benzyl ether dendrimers as compound (B). While not preferred, this clearly taught compound anticipates the dendrimeric organochalcogeno derivative in the instant claims. These dendrimers are present during the silane curing, and as such this will result in a composition in which the dendrimers are bound within the sol-gel matrix non-covalently. This anticipates the instant claims. See column 16, lines 45 to 50, which teach a substrate and coating method that meet those claimed.

6. Claims 1 to 3, 7, 9 to 12, 16, 18 to 23, 27 and 29 to 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Kwon et al.

Kwon et al. teach nanopore forming materials in which a nanopore forming triazine derivative is admixed with an organosilicate polymer. As can be seen from the definition of Chemical Formula 3 (definition in paragraph 41), the triazine derivative can be a dendrimer. Further attention is drawn to Example 1, in which triazine trichloride is reacted with polyethyleneglycol, which forms the "L" linking molecule. The resulting compound corresponds to Chemical Formula 3, a dendrimer. This is admixed with an organosilicate composition. See paragraph 75, in which the organosilicate is formed from tetramethoxysilane, meeting claim 3. Again, while not specifically referred to as a sol-gel, this hydrolysis/condensation product is, in fact, a sol-gel matrix. The resulting composition will have a triazine/polyethylene glycol dendrimer bound to the sol-gel matrix non-covalently. In this manner the instant claims are met by the teachings in Kwon et al. Paragraph 44 teaches a lower amount of nanopore forming material of 2 wt%, meeting claim 9. Paragraphs 64 and 65 teach substrate and coating methods meeting that claimed.

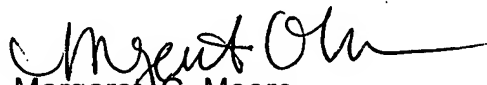
7. Claims 4 to 6, 13 to 15 and 24 to 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest these particular dendrimers in combination with a sol-gel matrix as claimed.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret G. Moore whose telephone number is 571-272-1090. The examiner can normally be reached on Monday to Wednesday and Friday, 10am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Margaret G. Moore
Primary Examiner
Art Unit 1712

mgm
12/17/05